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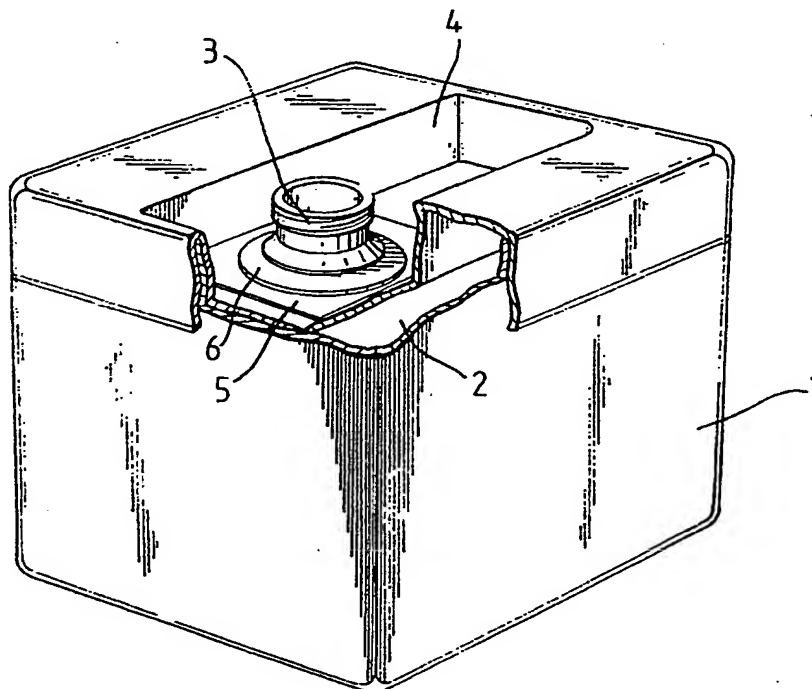
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UK CL (Edition J) B8P PG2 PK9 PS
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(54) Bag-in-box containers

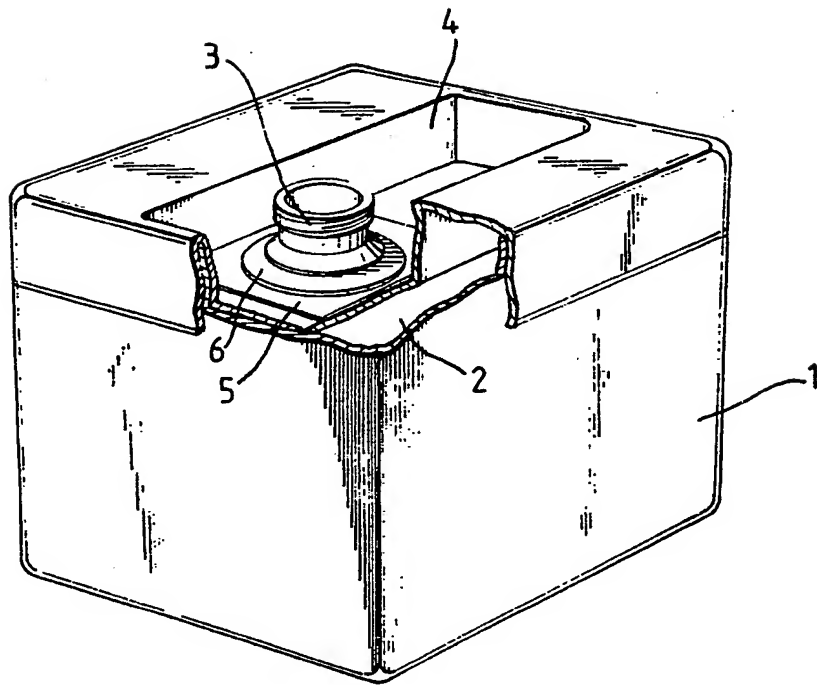
(57) A stackable assembly for packaging and dispensing a liquid product comprises a rigid outer container (1) having therein a flexible inner container (2) for holding the liquid product, the inner container (2) being equipped with a mouth member (3). An opening in the rigid outer container (1) for protrusion of the mouth member (3) is located in a recess part (4) thereof, the mouth member (3) being rigidly held in said opening, and the recess part (4) being deep enough to prevent the mouth member (3) from protruding beyond the surface of the rigid outer container.

Fig. 1.



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Fig. 1.



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Fig. 2.

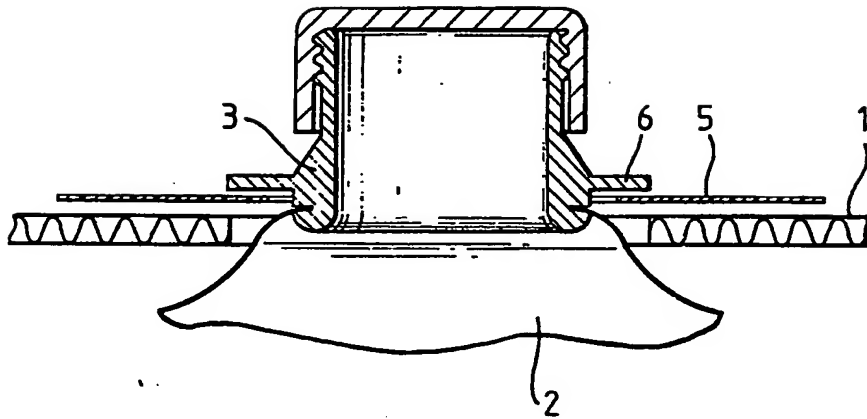
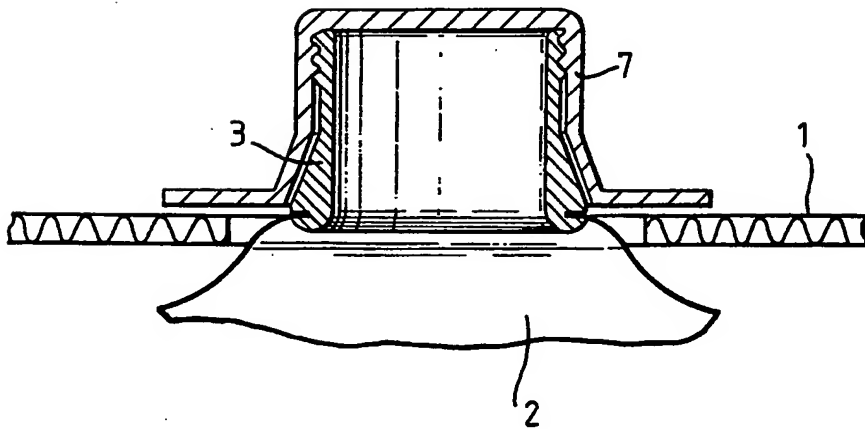


Fig. 3.



ASSEMBLY FOR PACKAGING AND DISPENSING A LIQUID PRODUCT

The present invention relates to an assembly for packaging and dispensing a liquid product. More in particular, it relates to a stackable assembly for packaging and dispensing a liquid product comprising a
5 rigid outer container having therein a flexible inner container for holding the liquid product, the inner container being equipped with a mouth member, whereby an opening is provided in the rigid outer container to enable protrusion of the mouth member of the flexible
10 container.

Such assemblies are known in the art as Bag-in-box and are, for instance, described in European patent applications 266,649 and 266,718. They are used to
15 distribute amounts of 10-30 litres of liquid product. The rigid outer container is usually made of carton while the flexible inner container is a collapsible bag made of a plastic material. The mouth member is usually sealed with a cap.

20 During storage and transport, the sealed mouth member is retracted inside the rigid outer container through an opening in the upper surface thereof, thus providing an essentially flat upper surface which enables stacking
25 the containers on top of each other.

In use, the mouth member is pulled through the opening in the upper surface of the outer container, the cap is removed and the mouth member is connected to a tube
30 system, through which the liquid product may be pumped to the site of application. The flexible inner container thereby gradually collapses, whereas the outer container essentially retains its form. When the inner container

is empty, the assembly is simply replaced by a new one.

The assembly described provides a safe way of storing and handling liquid products which may sometimes be of a hazardous nature, for instance when it is highly alkaline. However, the manipulations involved in replacing an empty assembly by a new one, i.e. pulling the mouth member through the opening in the upper surface of the outer container, removing the sealing cap and then connecting the tube system to the mouth member entails the risk of the operator coming into contact with the liquid product, especially if the mouth member is not well fixed. Moreover, when the sealing cap is removed, moving the assembly or placing it on the floor may easily cause the liquid product to spill from the mouth member owing to the elastic nature of the inner container.

In order to decrease this risk, it has been proposed in European patent applications 266,649 and 266,718 to provide the mouth member with a collar having elements which are aimed to fix the mouth member once it has been pulled through the opening in the outer container.

Such construction, however, does not allow the operator to exert much downward or rotating pressure upon the mouth member, as is required when connecting the mouth member to the tube system for transporting the liquid to the site of application. Even when a quick-coupling system is envisaged, such as, for instance, described in European patent application 270,302, there is a risk of pushing the mouth member back through the opening upon connecting it to the tube system.

It is an object of the present invention to provide an assembly for packaging and dispensing a liquid product,

which gives optimal user convenience and safety while it is at the same time sufficiently economical to manufacture.

5 We have now found that a simple and reliable solution to the above-mentioned problems can be provided by the assembly according to the present invention, which is characterized in that the opening in the rigid outer container is located in a recess part thereof, the mouth
10 member being rigidly held in said opening, and the recess part being deep enough to prevent the mouth member from protruding beyond the surface of the rigid outer container.

15 The mouth member can thus be permanently fixated in the outer container in the factory, and the need for manipulation of the mouth member by the customer is reduced to a minimum. At the same time, the stackability of the assembly is maintained.

20 According to a preferred embodiment, the mouth member is rigidly held in the opening of a recess part of the upper surface of the rigid outer container by means of one or more fixing elements which fit on the mouth
25 member and are retained by a collar on said member.

Alternatively, the mouth member can be rigidly held in the opening of a recess of the upper surface of the rigid outer container by means of one or more fixing
30 elements which are placed on to the mouth member and support on to the upper surface.

It is especially preferred if the assembly comprises a mouth member which is adapted to receive a mating tube
35 adaptor member of a quick-coupling system.

The invention will now be better explained by means of the following specific descriptions, in which :

Fig. 1 illustrates a stackable assembly for
5 packaging and dispensing a liquid product, according to the invention.

Fig. 2 illustrates a cross-sectional view of a
mouth member of the assembly according to the invention.
10

Fig. 3 illustrates a cross-sectional view of an
alternative mouth member of the assembly according to
the invention.

15 Referring now to Fig. 1, a rigid outer container 1 is depicted, having therein a flexible container 2 for holding the liquid product, equipped with a mouth member 3. The mouth member 3 is fixated inside an opening of a recess part 4 of the rigid outer container 1.

20 The rigid outer container 1 has the form of a box of sufficient rigidity to withstand deformation during transport and storage. It can be made of one piece, but it may also comprise a separate top part which
25 facilitates the manufacture of the assembly. Suitable materials for the outer container are, for instance, cardboard or fibre board.

It is essential that the outer container should have a
30 substantially flat upper surface to enable the stacking of two or more of the assemblies on top of each other.

The inner container 2 is made of a flexible material such as polyethylene. When the liquid is pumped from the
35 assembly to the site of application, the container gradually collapses until it is empty.

The mouth member 3 is fixated in an opening in the rigid outer container 1. It is connected to the flexible inner container 2 and enables the dispensing of the liquid product from the assembly upon connecting the mouth member to a suitable mating tube adaptor member.

It is preferred to use a quick-coupling system, such as described in European patent application 270,302. The mouth member 3 is located at a recess part 4 of the outer container, the recess being deep enough to prevent the mouth member from protruding beyond the surface of the outer container 1. The recess part 4 is at least large enough to accommodate the mouth member 3, but it may comprise a larger area of the upper surface of the outer container 1. The recess part may be partially or totally covered, in order to prevent dirt accumulating in the recess part during transport and storage. When it is totally covered, at least part of the cover must be removed before use. The remaining part of the upper surface must be sufficiently large to enable the stacking of two or, preferably, several assemblies on top of each other.

In Fig. 2, the mouth member 3 on the flexible container 2 is rigidly held within the opening of the rigid outer container 1 by means of a rigid support plate 5. The mouth member 3 is thereby kept in place because the support plate 5 is retained behind a collar 6 on the mouth member. Preferably, the support plate 5 is made of a rigid material, e.g. a hard plastic material.

In Fig. 3, an alternative solution can be seen. Mouth member 3, which is connected to the flexible inner container 2, protrudes through the opening in the rigid outer container 1 and is kept in place by means of a cap 7, which is placed on to the mouth member and supports

on to the upper surface of the outer container 1.
Preferably, cap 7 is a screw cap, and forms part of a quick-coupling system.

- 5 It will be evident for the man skilled in the art how to manufacture the stackable assemblies according to the invention. In fact, they can be manufactured in a variety of ways. It is, however, preferred when the mouth member 3 is first put through an opening in a
10 separate covering part of the rigid outer container 1. Subsequently, the mouth member 3 is fixated in the opening, e.g. by putting a screw cap of a quick-coupling system over the mouth member, and the inner container is filled with the liquid product. Finally,
15 the covering part of the outer container is folded in a way such that a recess part is formed and the combination of the covering part and the filled inner container is put over a pre-folded, suitable, open-topped box to form the assembly.

CLAIMS

1. Stackable assembly for packaging and dispensing a liquid product comprising a rigid outer container (1) having therein a flexible inner container (2) for holding the liquid product, the inner container (2) being equipped with a mouth member (3), whereby an opening is provided in the rigid outer container (1) to enable protrusion of the mouth member (3) of the flexible inner container (2), characterized in that the opening in the rigid outer container (1) is located in a recess part (4) thereof, the mouth member (3) being rigidly held in said opening, and the recess part (4) being deep enough to prevent the mouth member (3) from protruding beyond the surface of the rigid outer container.

2. Assembly according to Claim 1, wherein the mouth member (3) is rigidly held in the opening of a recess part of the upper surface of the rigid outer container (1) by means of one or more fixing elements (5) which fit on the mouth member and are retained by a collar (6) on said member.

3. Assembly according to Claim 1, wherein the mouth member (3) is rigidly held in the opening of a recess part of the upper surface of the rigid outer container (1) by means of one or more fixing elements (7) which are placed on to the mouth member and support on to the upper surface.

4. Assembly according to any one of the preceding Claims, wherein the mouth member is adapted to receive a mating tube adaptor member of a quick-coupling system.